

Deformulation and Comparative Analysis of Apparently Similar Polymers Using Multiple Modes of Pyrolysis-Gc/Ms

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Abstract : Detecting and identifying differences in like polymer materials are key factors in deformulation, comparative analysis as well as reverse engineering. Pyrolysis-GC/MS is an easy solid sample introduction technique which expands the application areas of gas chromatography and mass spectrometry. The Micro-furnace pyrolyzer is directly interfaced with the GC injector preventing any potential of cold spot, carryover, and cross contamination. This presentation demonstrates the study of two similar polymers by performing different mode of operations in the same system: Evolve gas analysis (EGA), Flash pyrolysis, Thermal desorption analysis, and Heart-cutting analysis. Unknown polymer materials and their chemical compositions are identified.

Keywords : gas chromatography/mass spectrometry, pyrolysis, pyrolyzer, thermal desorption-GC/MS

Conference Title : ICAPMMA 2022 : International Conference on Advanced Polymerization, Mechanisms, Methods and Applications

Conference Location : New York, United States

Conference Dates : June 02-03, 2022